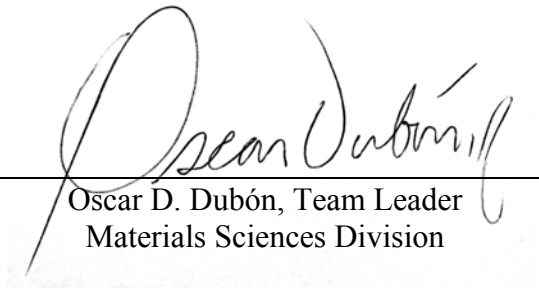
LBNL Safety Review Committee

Review of the Management of Environment, Safety, and Health of the Computing Sciences Directorate

November 2008



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I. Executive Summary

The Computing Sciences (CS) Directorate continues to provide the leadership and resources to effectively institute and sustain EH&S programs and systems tailored to the CS work environment. The Computing Sciences Directorate has identified ergonomic injuries as its primary hazard. The commitment of senior management is outstanding and, more importantly, widely recognized by the staff. Walkthroughs by Director Horst Simon and other senior management set the tone throughout the Directorate that EH&S and the implementation of suitable controls are of utmost importance to job performance and productivity and to a positive work environment. A policy of no budget constraints for ergonomic purchases has been implemented. This is has been effectively communicated to the staff as evidenced by the predominance of computer set-ups that were customized to fit the needs of the person working in the particular office/station. The Directorate's safety team is commended for having reached almost complete JHA compliance and course completion among the staff and guests (~98%). JHA questionnaires and controls have been properly designed and address in detail potential hazards. The electronic newsletter "In the Loop" has become an effective communication tool for EH&S matters. It appears to be an excellent, effective way to reach all staff. However, while the safety culture in CS is strong and controls are well implemented, the enactment of safety perhaps lacks some of the formality and documentation that might be necessary. Many staff members as well as some members of the line management were

unfamiliar with not only the ISM plan of CS but also the definition itself of ISM. Although this situation has not affected the high-level of safety, it may not be a desirable situation in the context of the greater, Lab-wide efforts to implement the ISM context using ISM definitions.

The MESH team has identified four noteworthy practices, two observations and one institutional observation during the review.

II. Introduction: Appraisal Process

The objective of this review is to assess the management of environmental safety and health (MESH) in the Computing Sciences Directorate, to identify noteworthy practices and concerns related to existing practices and conditions, and to report the MESH team's findings to the CS Directorate and the Berkeley Lab's Safety Review Committee (SRC). The appraisal process consisted of three steps: 1) a review of EH&S documentation provided by the Directorate including the current CS Directorate Safety (ISM) plan, recent self-assessments, and the last MESH review report (from 2005); 2) two meetings between the MESH appraisal team and members of the CS Directorate's EH&S management, and 3) a walk through inspection of selected CS facilities. The MESH appraisal team consisted of team leader Oscar D. Dubón of the Materials Sciences Division, Daniela Leitner of Nuclear Science Division, and Pilar Francino of the Joint Genome Institute.

The first meeting between the review team and CS personnel was held on August 26, 2008. Michael Banda, CS Deputy Director, and John Hutchings, CS Facilities Manager and Safety Coordinator, represented the CS Directorate. Michael Banda presented an overview of the Directorate EH&S organization and program and responded to questions, discussion points and

clarifications requested by the MESH review team. Following this meeting the MESH review team spoke with several staff members from different levels of management and performed a walk through of computer facilities and office space/cubicles in Buildings 50A-B. Finally, the MESH review team met with CS Director Horst Simon on September 5, 2008.

III. Organization of the Computing Sciences Directorate

The Computing Sciences Directorate has a broad mission of operating national user facilities and conducting research. The Directorate is comprised of two divisions, Computational Research Division (CRD) and National Energy Research Scientific Computing (NERSC). This differs from the Directorate's structure when the last MESH review was performed in 2005 at which time the Directorate included the Information Technologies and Services Division (ITD). Host Simon serves as both Director at large of CS and Director of CRD while Katherine Yelick serves as Director of NERSC. Michael Banda is Deputy Director of CS.

CRD creates computational tools and techniques for scientific discovery by conducting applied research and development in computer science, computational science, and applied mathematics. CRD also contains the Energy Science network (ESnet) that provides the network infrastructure for the entire DOE complex as well as major international experiments like the LHC. CRD is almost entirely office based and located in the building 50 complex. NERSC is a user facility the provides high-performance computing as well as information, data, and communication services for research sponsored by or related to the DOE Office of Science. The center supports over three thousand remote users and three hundred projects. The NERSC center is located almost entirely at the Oakland Scientific Facility (Building 943). Additionally, there are two members of the ESnet staff working remotely (Ames, Iowa, and New York).

The total number of employees and guests in the Computing Sciences Directorate numbers approximately 265, including Computational Research Division and NERSC. Figure 1 shows the staff profile for CS (RY 08). As the primary computing support and research group at the Laboratory, the main hazards of the Computing Sciences Directorate are related to computer and office work. EH&S issues common to such a work environment include computer ergonomics, lifting, seismic safety, and electrical safety. A small fraction of CS personnel also may encounter other hazards such as heavy equipment lifting.

As of August 26 2008, the CS Directorate had an EH&S management group comprised of Michael Banda, Deputy Director, John Hutchings, CS Safety Coordinator and Facilities Manager, and Elizabeth MacGowan, EH&S Division Liaison. The group has overall responsibility for EH&S planning, implementation of EH&S policy and procedures, and the day-to-day operation of the Directorate's EH&S program. As of August 26, 2008 the Directorate's Safety Committee was composed of William Iles (NERSC, B-943 OSF), Parisa Farvid (CRD, 50 Complex), Scott Mason (CRD, B-50A), Brian Tierney (CRD, B-50B), Wes Bethel (CRD, B-50F), and Jason Hick (NERSC, B-943 OSF). It is broadly represented by most CS programs and units and meets quarterly. The charge of the committee is to promote EH&S awareness and training, conduct routine inspections, analyze performance, and advise the Directorate. Another important body, the CS Accident

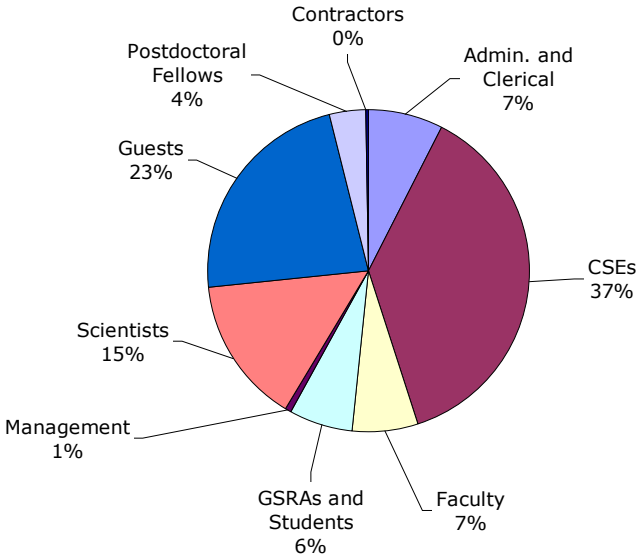

Figure 1. Staff profile—CS RY08 (courtesy of M. Banda, CS Deputy)

Review Board, participates in accident follow up with staff members, supervisors, EH&S tap root (and/or other Subject Matter Expert) to determine appropriate lessons learned and identify preventative measures that the staff member, supervisor, or CS Facilities group can implement to mitigate or remove any causes.

IV. MESH Review Results

The Computing Sciences Directorate has identified ergonomic injuries as its primary hazard while lifting injuries pose a secondary yet important hazard. Other considerations include seismic safety, electrical safety, and noise from computer hardware in certain areas. At all levels the staff has undertaken considerable effort to identify and control these hazards in the workplace. The main focus of EH&S controls in the Directorate is to have ergonomically correct furniture and accessories for employees and to train the employees on proper work habits to mitigate ergonomic hazards and avoid musculoskeletal injuries.

Assertive and engaged leadership and the Directorate's commitment to allocate resources to safety were evident in all facets of this review. As a result, the Directorate has built a positive, supportive environment that embraces safety, particularly with regard to ergonomic concerns. The separation of ITD from the CS Directorate resulted in the immediate decrease of recordable injuries—reaching zero 'Recordables' in FY 2008—as well as incidents requiring first aid. It is noted that as of August 26, 2006, John Hutchings was still providing safety support to ITD. In addition, a search of a full-time Safety Coordinator for CS was underway.

The Directorate's safety team is commended for having reached almost complete JHA compliance and course completion (~98%) among the staff and guests. JHA questionnaires have been properly designed and address in detail potential hazards for the different groups of CS employees as well as for occasional and resident vendors at NERSC. In addition, a line on

"contacting supervisor at the first onset of any discomfort or pain" is added as a control for "intensive use of computers" in the JHA for NERSC and CS Engineers, Programmers and Administrative personnel. However it is not included in the rest of the CS Directorate JHAs. The MESH review team suggests considering that this line should be added to the controls section for "intensive use of computers" in all CS JHAs. The 2005 MESH review indicated that the increased preference for notebook computers as the workstation of choice was a challenge. This is now properly addressed in the EHS 0059 online self-administered workstation evaluation, which is a JHA requirement for all employees.

Because the CS Directorate resides at six different locations both at the LBNL main campus and the OSF, major issues for the organization are to

i) Maintain effective communication, particularly in regards to EH&S, across divisions, departments, and work groups;
ii) Communicate safety information and policy awareness among all staff, both employees and guests;
iii) Integrate remote users into the safety framework at a suitable level.

Monthly all-hands meetings at NERSC as well as staff all-hands meetings at CRD (~3 times per year) help maintain proper communication. In addition, the composition of the CS Safety Committee, which includes staff from both CRD and NERSC, provides a suitable vehicle in which safety issues can be raised and information disseminated across the directorate. Important EH&S information that is produced at the Safety Committee meetings and other activities (e.g., meetings of the CS Accident Review Board and the annual CS Safety Program performance assessment) is transmitted through all-hands meetings, Group Leads and first line supervisors, and e-mail.

V. Noteworthy Practices

1. Noteworthy Practice: The commitment of senior management beginning with Director Horst Simon is outstanding and more importantly widely recognized by the staff. Walkthroughs by Director Simon set the tone throughout the Directorate that EH&S and the implementation of suitable controls are of utmost importance to job performance and productivity and to a positive work environment.

The proactive approach of senior management in EH&S matters is exemplified by the fact that CS lobbied vigorously for and participated in the roll out of online Ergonomics awareness/self-evaluation training, EHS 59. In addition, supervisor and manager training specific to CS has been implemented. For example, several offerings of EHS 26 (Environment, Safety and Health for Supervisors, Managers and Principal Investigators) from the Laboratory's EH&S training group were tailored to CS and offered in conjunction with Horst Simon's Supervisor and Group Leads meetings.

2. Noteworthy Practice: The electronic newsletter "In the Loop" has become a vital communication tool for EH&S matters. It appears to be an excellent, effective way to reach all staff as verified through interviews with several staff members from different levels of management during the walk through of computer facilities and office space/cubicles in Buildings 50A-B The MESH review team suggests that CS consider including a regular EH&S feature, such as a "Safety Minute" to further enhance the effectiveness of "In the Loop."

3. Noteworthy Practice: Every staff member interviewed had ergonomic safety as first priority on his/her mind. We interviewed a diverse sample of staff (student, postdoc, support

engineer, safety coordinator, administrative assistant, group leader) and it was evident that ergonomic safety is a high priority.

4. Noteworthy Practice: Senior management has implemented the policy of no budget constraints for ergonomic purchases. This has been effectively communicated to the staff; it was evident during informal interviews that the CRD staff is well aware of this resource and would not hesitate to request solutions to ergonomic problems. Indeed, during the review team's walk through, most computer set-ups were customized to fit the needs of the person working in the particular office/station.

Besides dealing properly with ergonomics, CSD is also very proactive in other areas of safety. These include safety related to the handling and maintenance of large numbers of computers, such as general electrical safety in computer floors and the implementation of special tools for removing floor tiles. CS continues to utilize the improved "Upright Tile Lifter" for accessing spaces below raised computer floors. Employees are trained in LOTO practices so that they can alert Facilities to perform LOTO when work on systems where electrical energy exceeds 50V is required.

VI. Observations

1. Observation: While the safety culture in CS is strong and controls are well implemented, the enactment of safety perhaps lacks some of the formality and documentation that might be required in the future. For example, documentation of walkthroughs and all-hands-meeting attendance should be improved and online information about these activities updated. Evaluation and documentation of the transmission of information via "In the Loop" and other

avenues, such as communication between line management and the staff, should be formalized.

2. Observation: Many staff members as well as some members of management interviewed were unfamiliar with not only the ISM plan of CS but also the definition itself of ISM. Although this has not affected the high level of safety in the Division and the elevated ergonomic safety awareness among staff and guests, it may not be a desirable situation in the context of the greater, Lab-wide efforts to practice EH&S using explicitly ISM definitions.

3. Institutional Observation: Guests pose a challenge for CS in terms of JHA and training compliance. At the time of the review, the CS management had been working with EH&S in search of a satisfactory solution. However, the MESH team points out that this is a Lab-wide issue which several divisions face, particularly those that support an active user community/guest program.